

2SC3777

UHF Oscillator, Mixer, Low-Noise Amplifier, Wide-Band Amplifier Applications

Applications

· UHF frequency converters, local oscillators, lownoise amplifiers, wide-band amplifiers.

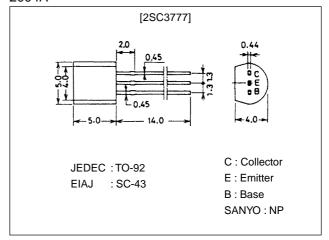
Features

- · Small noise figure : NF=3.0dB typ (f=0.9GHz).
- · High power gain : MAG=12dB typ (f=0.9GHz).
- · High cutoff frequency : $f_T=3.5GHz$ typ.

Package Dimensions

unit:mm

2004A



Specifications

Absolute Maximum Ratings at Ta = 25°C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V _{CBO}		25	V
Collector-to-Emitter Voltage	VCEO		16	V
Emitter-to-Base Voltage	VEBO		3	V
Collector Current	IC		50	mA
Base Current	IB		20	mA
Collector Dissipation	PC		400	mW
Junction Temperature	Tj		150	°C
Storage Temperature	Tstg		-55 to +150	°C

Electrical Characteristics at Ta = 25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	Offic
Collector Cutoff Current	ICBO	V _{CB} =16V, I _E =0			1.0	μA
Emitter Cutoff Current	I _{EBO}	V _{EB} =2V, I _C =0			10	μΑ
DC Current Gain	hFE	V _{CE} =10V, I _C =5mA	40*		200*	
Gain-Bandwidth Product	fT	V _{CE} =10V, I _C =5mA	1.8	3.5		GHz
Output Capacitance	C _{ob}	V _{CB} =10V, f=1MHz		0.7	1.0	pF
Reverse Transfer Capacitance	C _{re}	V _{CB} =10V, f=1MHz		0.45		pF

120

100 E 200

С

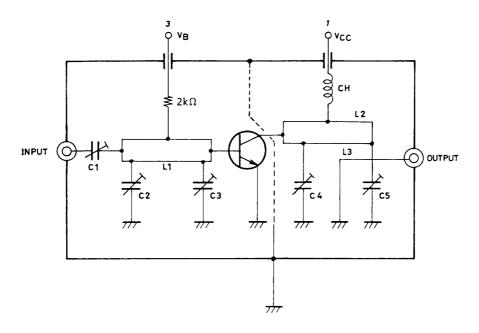
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 $[\]ast$: The 2SC3777 is classified by 5mA h_{FE} as follows :

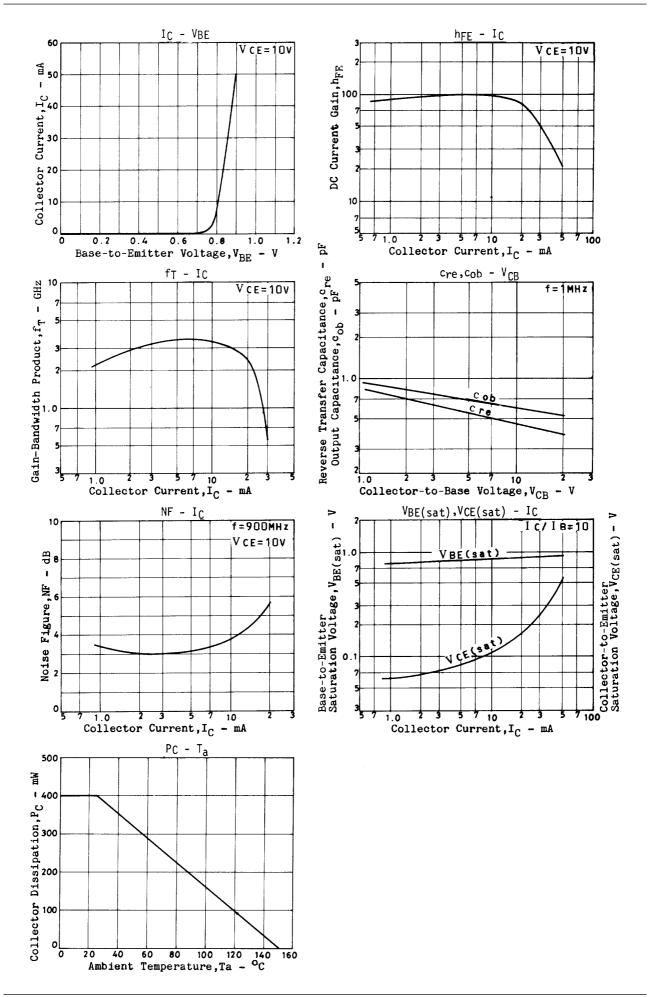
2SC3777

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	J OIIII
Forward Transfer Gain	S21e ²	V _{CE} =10V, I _C =10mA, f=0.9GHz	7.5	9		dB
Maximum Available Power Gain	MAG	V _{CE} =10V, I _C =10mA, f=0.9GHz		12		dB
Noise Figure	NF	V _{CE} =10V, I _C =3mA, f=0.9GHz, See specified Test Circuit.		3.0	5.0	dB

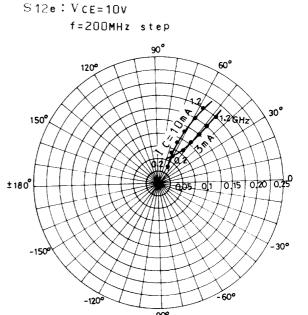
NF Test Circuit



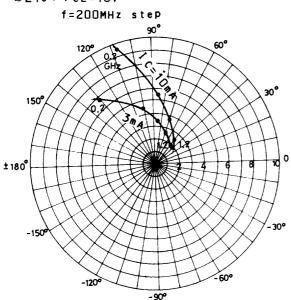
	900MHz		
C1	~5pF		
C2	~10pF		
C3	~10pF		
C4	~10pF		
C5	~10pF		
L1	W ≈ 1.5mm, I ≈ 25mm		
	Strip line		
L2	W ≈ 4mm, I ≈ 25mm		
	Strip line		
L3	0.5φ, I ≈ 40mm		
CH	2t+bead core		

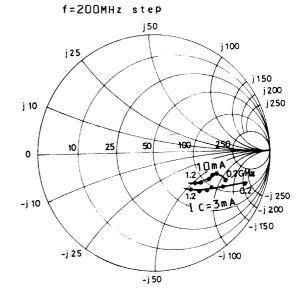


S11e: VCE=10V f=200MHz step j 50 j 100 j 25 j 150 j 200 j 250 j 10 1.2 GHZ 0 , , j 250 , j 2∞ -j 10 -j 25 -j 50 S21e: VCE=10V f=200MHz step



S22e: VcE=10v





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